

THE EARLY LITERATURE ON MALLOPHAGA

BY

THERESA CLAY

AND

G. H. E. HOPKINS

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PART II. 1763-1775

Pp. 1-36; Pls. 1-3; 45 Text-figures



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PART II, 1763-1775

SYNOPSIS

This is the second part of a series of papers in which it is intended to review the species of Mallophaga described between 1758 and 1818. This part deals with the twenty species described by G. A. Scopoli in 1763 and 1772, the single species described by Pontoppidan in 1763, and the three species described by J. C. Fabricius in 1775.

IN the first part of this work (Clay and Hopkins, 1950) we remarked on the possibility that specimens in the Nitzsch collection that are not the types of names given by Nitzsch might wrongly be considered as types by writers who do not accept the rules of nomenclature. We were not aware, when we wrote this, that Kéler (1941) had listed many of the Halle specimens of species described by Nitzsch in 1818 by reference to older descriptions as the types of the 1818 names. Leaving aside queried instances, the names affected that concern us in our discussion of the early literature are as follows:

Trichodectes crassus Nitzsch (p. 129). The specimens of *Pediculus melis* in Fabricius's collection are still preserved at Copenhagen and are of necessity the types of *crassus* as well as of *melis*.

Trichodectes scalaris Nitzsch (p. 130). Since *scalaris* is merely a *nomen novum* for *Pediculus bovis* Linn., the types are the lost specimens of Linné, which we have replaced (1950: 227). The specimens in Nitzsch's collection have no special status.

Trichodectes longicornis (p. 130). Although the specimens in the Nitzsch collection at Halle are not types, there is no reason why one of them should not be erected as a neotype, and we intend to take this course in the final instalment of this work. Until this is done they have no special status.

No host-records are given in Kéler's list mentioned above, but the hosts can be ascertained by reference to his two papers 'Baustoffe zu einer Monographie der Mallophagen', Parts I and II (1938 and 1939), and (as it happens) in none of the above-mentioned cases is the host of Nitzsch's material definitely different from that of the earlier author on whose description or figure Nitzsch's 1818 names rest their sole claim to validity. We therefore considered whether we could accept Kéler's listing of these specimens as types of Nitzsch's names as constituting them neotypes of the earlier names, but we have decided against this. In the instances mentioned above (except in the case of *crassus*) this course might be possible, but in the case of *crassus* the original types are still in existence at Copenhagen and in other cases, also, it would be quite impossible to accept Kéler's listing. As an instance, *Goniodes dissimilis* was first described by Denny in 1842 and the specimens listed by Kéler (p. 133) would (if they have any status at all) be types of *Goniodes dissimilis* Nitzsch 1874 (not *G. dissimilis* Denny 1842, nor *G. dissimilis* Gurlt 1842) if the species were not the same. We think the principle underlying these statements of fact to be of such

importance that we find ourselves unable to stretch a point by regarding Kéler's listing of specimens as 'Typen' of Nitzsch's 1818 names as constituting them neotypes of the older names on which Nitzsch based them in 1818. We are confirmed in this attitude by the fact that Kéler has evidently not studied the early literature at all—'*equi* (Lin.)', for instance, does not exist, no species having been described under this name prior to 1842, when Denny described it.

We are indebted to the Trustees of the British Museum for permission to publish Figs. 9, 10, 21, 31, 32, 34, drawn by Mr. A. J. E. Terzi, and to Colonel Meinertzhagen for permission to publish Figs. 8, 16–18, 23–25, 29–30, 38–40 drawn by Mr. R. S. Pitcher. Figs. 2, 11, 12, 15, 20, 33, 36 were drawn by Miss B. A. Read. The remaining figures were drawn by Miss T. Clay. We are also indebted to Captain W. H. Pollen for the photographs on Pl. II, figs. 1–2; the other photographs, with the exception of Pl. I, fig. 2, were taken by Mr. H. M. Malies.

In the measurements given under each species the length of the male genitalia has almost always been taken from a specimen other than the neotype: it has, therefore, not been considered necessary to note this fact in individual instances, as we did in Part I of this work.

SCOPOLI 1763 (*Entomologia Carniolica*. Vindobonae: 381–385)

The names in this work are unquestionably in valid form, and the descriptions, though very brief, are usually adequate for the recognition of the genus, which is as much as we can expect from the old descriptions. Scopoli's collections are stated to have been destroyed, either by fire or shipwreck, in 1776.¹

Pediculus haematopus (p. 381)

The description is undoubtedly that of a *Philopterus* s.l. and the host-record is '*Habitat in Falcone Palumbrio, & Strige Ulula*'. The name would, therefore, refer to a mixture of a *Craspedorrhynchus* and a *Strigiphilus* but for the fact that Scopoli notes that the specimens from the owl were slightly different, thus constituting *Falco palumbarius* = *Accipiter gentilis* (Linn.) the type-host. J. C. Fabricius (1775: 806) unnecessarily renamed the species *Pediculus Strigis* (nec *P. strigis* Pontoppidan, 1763), and Nitzsch (1818: 290) again renamed it *Philopterus* (*Docophorus*) *platyrhynchus*. Harrison's erroneous belief that *haematopus* is preoccupied by *haematopi* Linn., 1758 (which is not a homonym), has caused most later authors to call the species by the name given to it by Nitzsch.

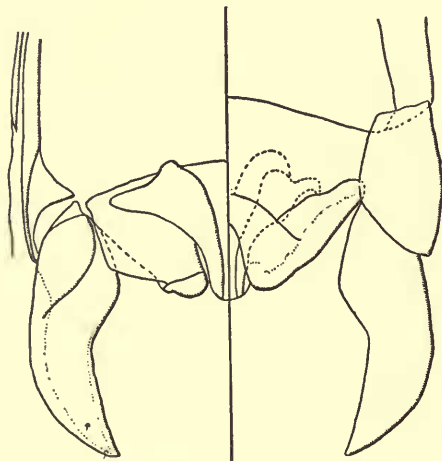


FIG. 1. *Craspedorrhynchus haematopus* (Scopoli), male genitalia. $\times 351$.

Pediculus tinnunculi Latreille? 1818 (nec Linné 1758) is also a synonym of *Craspedorrhynchus haematopus* (Scopoli). As pointed

¹ Horn, W., and Kahle, J., 1936. Über entomologische Sammlungen. *Ent. Beiheften* 3: 252.

out by Hopkins (1949, *Ann. Mag. nat. Hist.* (12) 2: 48), it is based on a drawing copied from one copied by Hooke (in Albin's *Natural History of Spiders and Other Curious Insects*, 1736) from one of Redi's figures of 'Pollini dell' Astore', so the host is *Accipiter gentilis* (Linn.).

Neotype male (Fig. 1) and neallotype female (Fig. 2) of *Craspedorrhynchus haematopus* (Scopoli) from *Accipiter g. gentilis* (Linn.) from Estonia (Meinertzhagen collection slide No. 1464); these specimens agree in characters other than those figured here with the figures published by Merisuo (1945, pl. 2, fig. D; pl. 3, figs. D, d). *Neoparatypes*: 14 males and 12 females from the same host-form, Estonia.

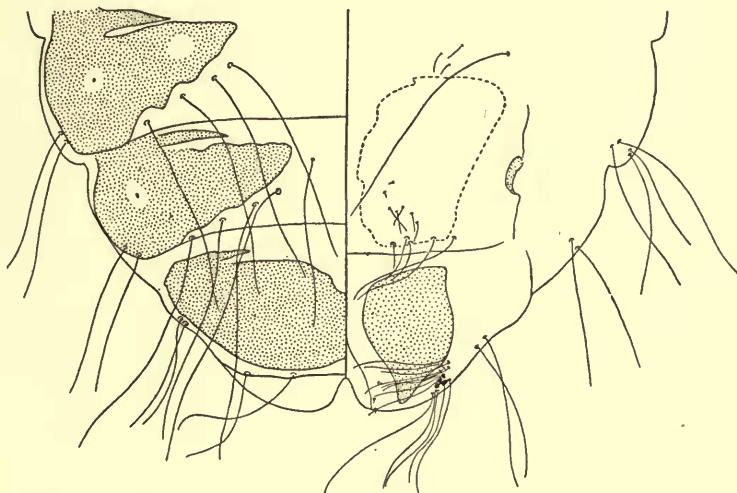


FIG. 2. *Craspedorrhynchus haematopus* (Scopoli), terminal segments of female abdomen. $\times 102$.

The neotypes are automatically also neotypes of *Craspedorrhynchus strigis* (J. C. Fabricius) 1775 and of *Craspedorrhynchus platyrhynchus* (Nitzsch) 1818.

Pediculus maximus (p. 382)

The particulars given, especially the size, can apply only to a *Laemobothrion*, and this fact has been recognized ever since the genus was erected. The host is *Falco Buteo* = *Buteo buteo* (Linn.).

J. C. Fabricius (1776: 309) renamed the species *Pediculus Buteonis*; Nitzsch (1818: 301) proposed the name *Liotheum* (*Laemobothrion*) *giganteum* for *maximus* Scopoli, *buteonis* Fabricius, and *circi* Geoffroy, and we shall deal with Nitzsch's name in such a way as to make it a synonym of *Laemobothrion maximum* (Scopoli).

Eichler has figured the species (1941, fig. 28, and 1942, fig. 4) and in the second of these papers he erects (p. 59) a neotype for the species, the neotype being from a specimen of *Buteo vulgaris* collected at Agna Manja, Teneriffe; Dr. Eichler informs us (*in litt.*) that this was probably *Buteo buteo insularum* Flöricke.

Eichler's neotype of *Laemobothrion maximum* (Scopoli) is automatically also neotype of *L. buteonis* (J. C. Fabricius), but not of *L. giganteum* (Nitzsch).

Pediculus coarctatus (p. 382)

The host-record is '*Lanio Collur*'. Harrison (1916: 12) considered the name to apply to a *Menopon* s.l. and placed *M. fuscocinctum* Denny and other names in the synonymy, but this identification of Scopoli's species is quite certainly incorrect, for the mention of a white abdomen with seven conical fuscous spots on each side and with a fuscous apical fascia, coupled with the host-record, is completely diagnostic of a *Philopterus*. J. C. Fabricius (1798: 570) described a *Pediculus lanii*, from *Lanius collurio* Linn., which we consider to be the same species, and Schrank (1803: 187) described a *Pediculus collurionis* from 'Dorndreher' (= *L. collurio*). Schrank's description is independent, but he quotes *coarctatus* as a synonym and his species is certainly a *Philopterus*; we identify this, also, as a synonym of *coarctatus*.

The species of *Philopterus* parasitizing the small European Passeres are very similar to each other, and in many cases it is difficult (if not impossible) to distinguish the females of two species. Specific differences in the head may be found in the form of the hyaline margin and the shape of the dorsal anterior plate (clypeal signature). The measurements of the head are, in general, unreliable characters; not only is there considerable variation within a species but, although species may be distinguished from each other by the means of the length or breadth, there is always considerable overlap, making the identification of many specimens by measurements impossible. Again, in most species the proportions of the head show no reliable specific differences; the cephalic index (breadth : length) tends to remain constant and gives less indication of differences than do the actual measurements of length and breadth. Tables of the C.I. and breadth measurements for three species illustrate these points (Tables 1-4).

As in most species with heavily sclerotized plates, there is always considerable variation in the outline of these plates. The exact outline of the prosternal plate, the abdominal tergites, and the sternites of the male and female genital regions cannot, therefore, be used as specific characters. The prosternal plate may vary considerably in outline within one species (Fig. 3), but in some species (*P. citrinellae* (Schrank), for

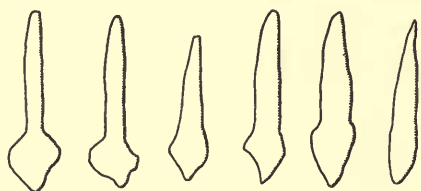


FIG. 3. *Philopterus coarctatus* (Scopoli), prosternal plates of 6 females taken from one host individual. $\times 175$.

instance) the posterior part is more heavily sclerotized and pigmented. The female genital plate varies in outline (Fig. 44 shows the outline in four specimens of *P. fringillae* taken from the same host individual), but such characters as the curvature of the anterior margin and the ratio of breadth to length may be of specific importance. Comparison of the female genital plate of *P. coarctatus* with that of *P. fringillae* shows that the anterior margin

always tends to be more rounded in the former than in the latter. The ratio of breadth to length is given in Table 5; the variation is caused by the variation in the length of the plate due to the lack of posterior sclerotization in some specimens, the breadth tends to be fairly constant.

The chaetotaxy of the thorax and abdomen shows much variation, but some

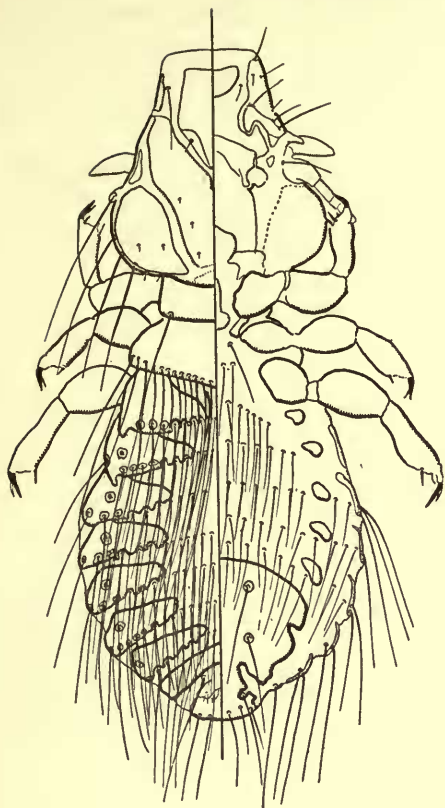


FIG. 4

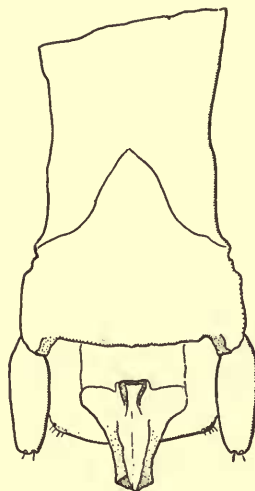


FIG. 5

FIGS. 4-5. *Philopterus coarctatus* (Scopoli): 4. Male (setae not shown on legs).
5. Male genitalia. $\times 196$.

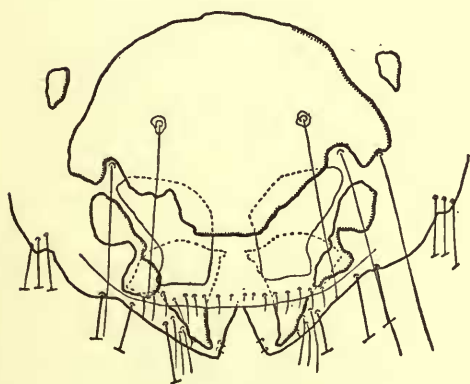


FIG. 6

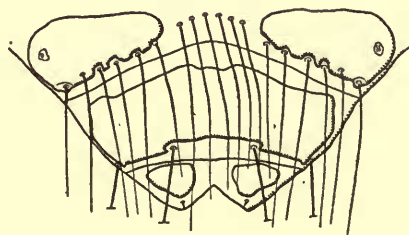


FIG. 7

FIGS. 6-7. *Philopterus coarctatus* (Scopoli), terminal segments of female abdomen: 6. Ventral view. $\times 152$. 7. Dorsal view. $\times 107$.

species can be distinguished by the unusually large or small number of setae on certain segments.

The male genitalia, as is usual throughout the Ischnocera, give the most reliable specific differences, although in these characters, also, the differences are of small magnitude.

Philoaterus coarctatus (Scopoli) (Figs. 3-7; Pl. I, fig. 1; Tables 1-5) is distinguished in the male by the characters of the genitalia, and in the female by the form of the hyaline margin, the prosternal plate, and the proportions of the genital plate.

Measurements in mm.

	Male		Female	
	Length	Breadth	Length	Breadth
Head . . .	0.55	0.50	0.60	0.57
Prothorax . . .	..	0.28	..	0.32
Pterothorax . . .	..	0.42	..	0.48
Abdomen . . .	0.78	0.62	1.02	0.80
Total . . .	1.55	..	1.67	..
Genitalia . . .	0.27	..	..	..

Neotype male (Figs. 4-5) and *neallotype* female (Figs. 3, 6, 7; Pl. I, fig. 1) of *Philoaterus coarctatus* (Scopoli) from *Lanius c. collurio* Linn., from Yugoslavia (British Museum (Natural History) collection, slide No. 485). *Neoparatypes*: 28 males and 51 females from the same host-form from Yugoslavia, Poland, Estonia, Sweden, the British Isles, and the Anglo-Egyptian Sudan.

Pediculus ocellatus (p. 382)

The unusually good description places it beyond doubt that this species is a *Philoaterus*, as has long been accepted. The hosts, however, are *Corvus corax* and *C. cornix*, so that the name originally applied to a mixture of *Philoaterus corvi* (Linn.) and a second species which had not then been described. It has commonly been accepted as a principle that the first host mentioned by an author should be regarded as the type-host, but we can only accept this principle when there is no strong reason in favour of its rejection. In the present instance the fact that *ocellatus* has been accepted since 1818 (at least) as referring to the species found on *Corvus corone cornix* would be a very strong argument against accepting *Corvus corax* as type-host even if Nitzsch (1818: 290) had not restricted *ocellatus* to the species found on *C. corone* and its sub-species.

J. C. Fabricius (1775: 807) unnecessarily renamed the species as *Pediculus Cornicis* and dropped the mention of *Corvus corax* as a host. Nitzsch (1818: 290) retained Scopoli's name, contrary to his usual practice, and the species was subsequently always known as *ocellatus* (the authorship usually wrongly ascribed to Nitzsch) until Thompson (1935: 214) mistakenly replaced this name by *Philoaterus corvi* (Linn.), with which we have already dealt and which is not the same species.

Philoaterus ocellatus (Scopoli) is distinguished from *P. corvi* (Linn.) by having the

anterior plate (= clypeal signature) heavily sclerotized and pigmented posteriorly, and by the characters of the male genitalia and female genital region.

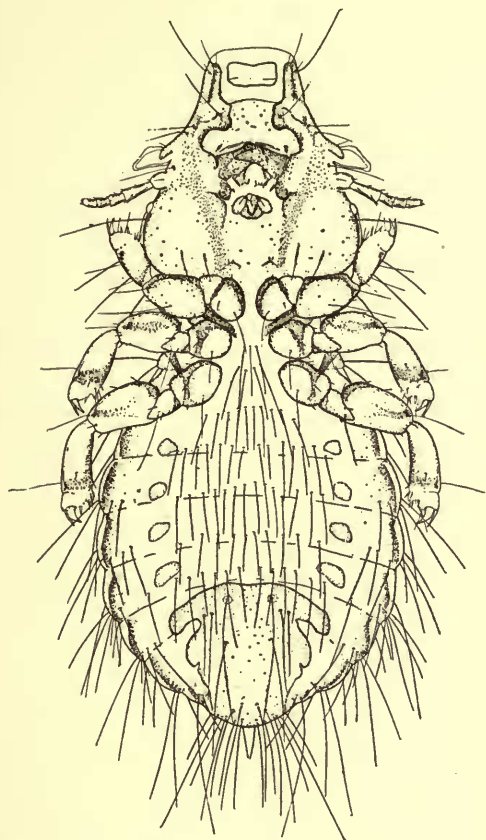


FIG. 8. *Philopterus ocellatus* (Scopoli), male.

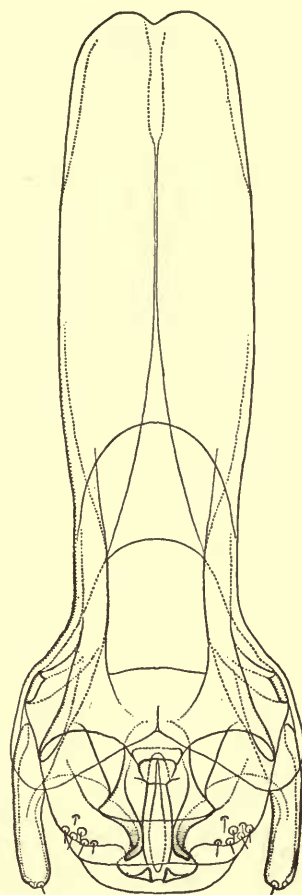


FIG. 9. *Philopterus ocellatus* (Scopoli), male genitalia.

Measurements in mm.

	Male		Female	
	Length	Breadth	Length	Breadth
Head . . .	0.75	0.76	0.80	0.80
Prothorax. . .	..	0.47	..	0.48
Pterothorax . . .	..	0.68	..	0.70
Abdomen . . .	1.34	1.11	1.36	1.12
Total . . .	2.46	..	2.50	..
Genitalia . . .	0.48	..	..	..

Neotype male (Figs. 8-9, 11; Pl. I, fig. 2) and *neallotype* female (Figs. 10, 12) of *Philopterus ocellatus* (Scopoli) from *Corvus corone sardonius* Kleinschmidt from

Yugoslavia (British Museum (Natural History) collection, slide No. 484). *Neopara-*
types: 10 males and 9 females from the same host-form from Yugoslavia, Greece,
 Palestine, and Egypt and 40 males and 30 females from *Corvus corone cornix* Linn.
 from the British Isles, Estonia, and Sweden.

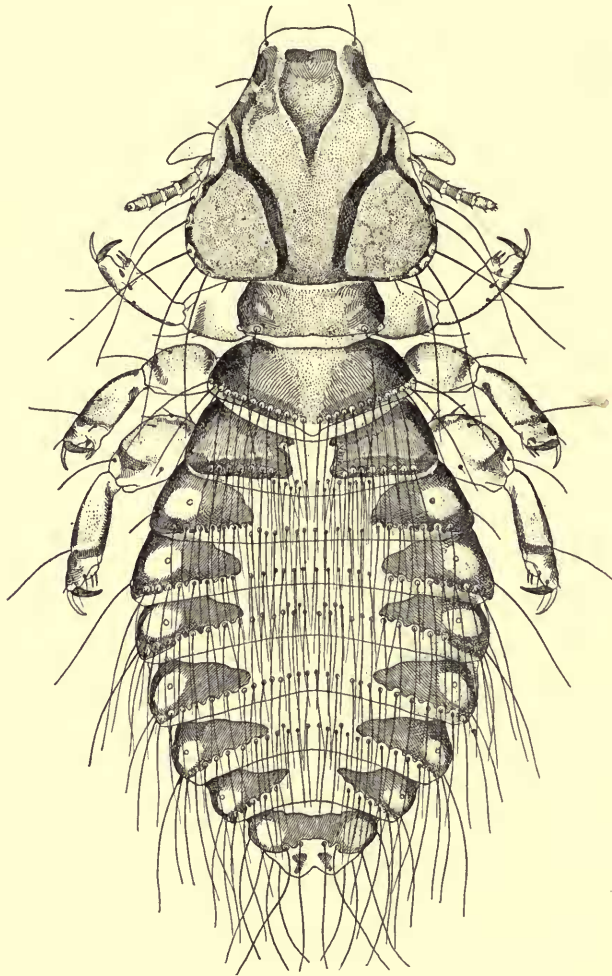


FIG. 10. *Philopterus ocellatus* (Scopoli), female.

These neotypes are also neotypes of *Philopterus cornicis* (J. C. Fabricius). There is no such species as *Philopterus ocellatus* (Nitzsch).

Pediculus dolichocephalus (p. 382)

There has never been any doubt about the identity of this species, the very brief description agreeing with no oriole-parasite except *Ricinus*. The original host-record is '*Habitat in Coracia Oriolo*', which Harrison (1916: 66) misconstrued as meaning *Coracias* and *Oriolus*, evidently not realizing that in Scopoli's time the oriole was

contained in the genus *Coracias*. Similar errors will be mentioned under *Pediculus ardealis* and *P. troglodytis*.

J. C. Fabricius (1776: 310) renamed the species *Pediculus Orioli*, and Nitzsch (1818: 302) called it *Liotheum (Physostomum) sulphureum*, but there is not the slightest

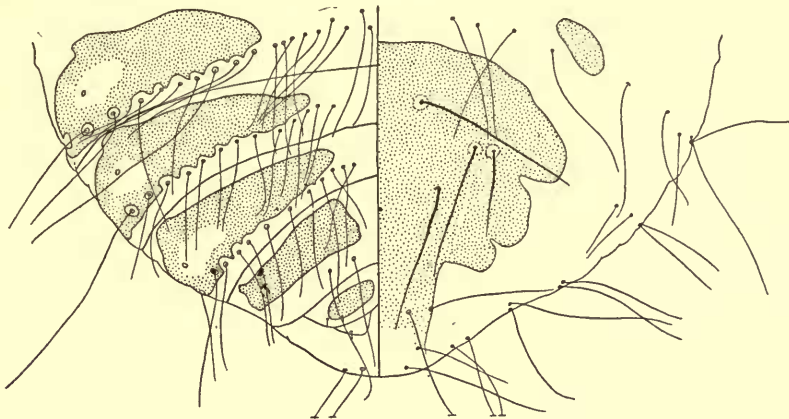


FIG. 11

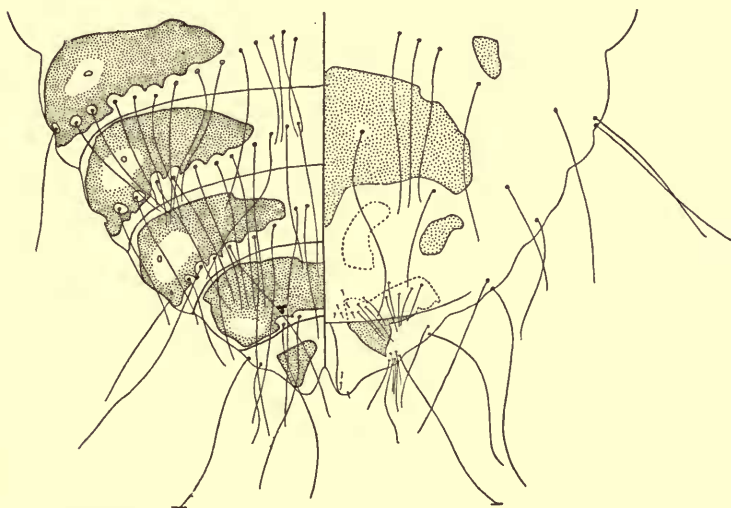


FIG. 12

FIGS. 11-12. *Philopterus ocellatus* (Scopoli), terminal segments of abdomen: 11. Male. $\times 89$.
12. Female. $\times 67$.

justification for either of these *nomina nova*. The description given by Fabricius is an abridged version of that of Scopoli, and Nitzsch gives no description and no 'indication' except a reference to Scopoli, so both these names derive their validity solely from Scopoli's description.

This species is distinguished from other species of *Ricinus* by the characters of the

mandibles (Fig. 13),¹ by the shape of the head and the characteristic colour-pattern of the body (Pl. I, fig. 3), the characters of the male genitalia (Fig. 14), and the terminal segments of the female abdomen (Fig. 15).



FIG. 13

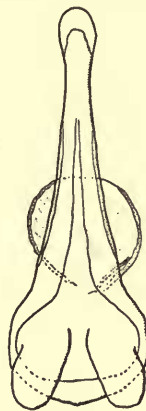


FIG. 14

FIGS. 13-14. *Ricinus dolichocephalus* (Scopoli): 13. Left mandible. $\times 191$. 14. Male genitalia.

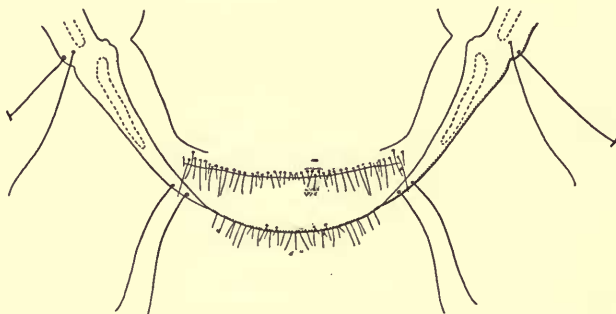


FIG. 15. *Ricinus dolichocephalus* (Scopoli), terminal segments of female abdomen, ventral. $\times 75$.

Measurements in mm.

	Male		Female	
	Length	Breadth	Length	Breadth
Head . . .	0.76	0.68	0.97	0.78
Prothorax . . .	..	0.57	..	0.70
Pterothorax . . .	..	0.75	..	1.03
Abdomen . . .	..	0.83	..	1.16
Total . . .	3.50	..	4.65	..
Genitalia . . .	0.46	..	..	..

Neotype male (Figs. 13-14) and *neallotype* female (Fig. 15; Pl. I, fig. 3) of *Ricinus dolichocephalus* (Scopoli) from *Oriolus o. oriolus* (Linn.) from NE. Poland (Meinertz-

¹ These structures show characters of specific value throughout the genus *Ricinus*.

hagen collection, slide No. 4190). *Neoparatypes*: 3 males and 10 females from same host-form, NE. Poland, Switzerland, and Cyprus.

These neotypes are, of necessity, also neotypes of *Ricinus oriolii* (J. C. Fabricius) and of *R. sulphureus* (Nitzsch).

Pediculus fasciatus (p. 383)

The host is *Cuculus canorus* and the description, unmistakably that of the characteristic *Cuculiphilus* found on this bird, has long caused the name to be correctly ascribed to this louse.

J. C. Fabricius (1775: 807) renamed the species *Pediculus Cuculi*, his description being copied from that of Scopoli, and Nitzsch (1818: 300) proposed *Liotheum (Menopon) phanerostigmaton* as a *nomen novum* for it. The species went under this latter name (and its variant, *phanerostigma* Giebel) until Harrison (1916: 47) restored Scopoli's name. Uchida (1926: 47) designated *Pediculus fasciatus* Scopoli as type species of *Cuculiphilus*.

Neotype male (Figs. 16-17) and *neallotype* female (Fig. 18) of *Cuculiphilus fasciatus* (Scopoli) from *Cuculus c. canorus* Linn. from NE. Poland (Meinertzhagen collection, slide No. 4211). *Neoparatypes*: 3 males and 8 females from same host-form, NE. Poland, Ushant (France), and Tanganyika Territory.

These neotypes are automatically also neotypes of *Cuculiphilus cuculi* (J. C. Fabricius) and of *C. phanerostigmaton* (Nitzsch).

Neotype of *Cuculiphilus phanerostigma* (Giebel), a male from *Cuculus c. canorus* Linn. from Ushant, France (Meinertzhagen collection, slide No. 780), agreeing with the neotype of *Cuculiphilus fasciatus* (Scopoli).

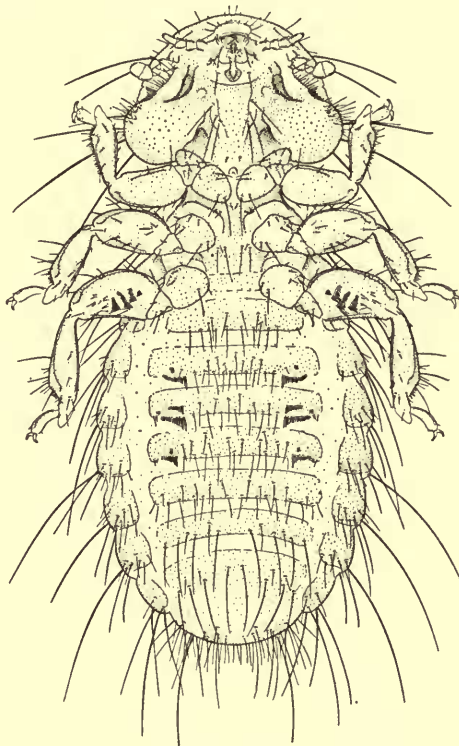


FIG. 16. *Cuculiphilus fasciatus* (Scopoli), male.

Measurements in mm.

	Male		Female	
	Length	Breadth	Length	Breadth
Head . . .	0.35	0.58	0.35	0.63
Prothorax. . .	..	0.37	..	0.39
Pterothorax . . .	..	0.45	..	0.48
Abdomen . . .	0.90	0.73	1.02	0.82
Total . . .	1.52	..	1.79	..
Genitalia . . .	0.48	..	..	..

Pediculus auritus (p. 383)

The hosts are *Picus major* and *P. martius*, i.e. *Dryobates major* (Linn.) and *Dryocopus martius* (Linn.), and the description unquestionably refers to a *Penenirmus*. In the absence of any indication to the contrary, we regard the first host mentioned by Scopoli as the type-host. Schrank (1803: 188) described a *Pediculus Pici* from 'Schwarzpecht' (= *Dryocopus martius*), placing *auritus* Scopoli as a synonym, but we cannot accept this as a restriction of *auritus* to one host, especially as Schrank also placed *Pulex picae* Redi (i.e. *Myrsidea picae* (Linn.), from *Pica pica*) as a synonym.

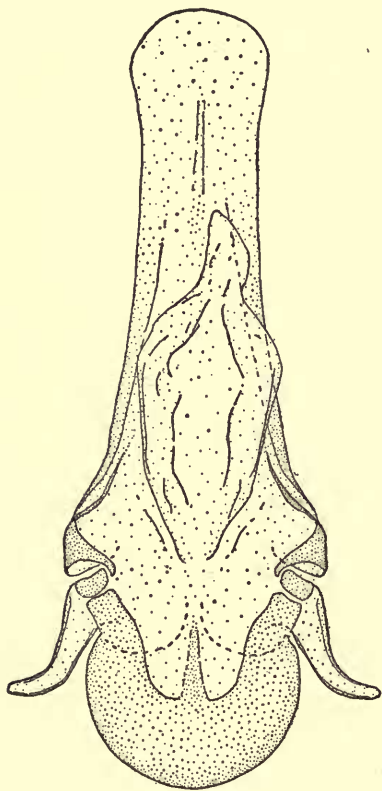


FIG. 17. *Cuculiphilus fasciatus* (Scopoli), male genitalia.

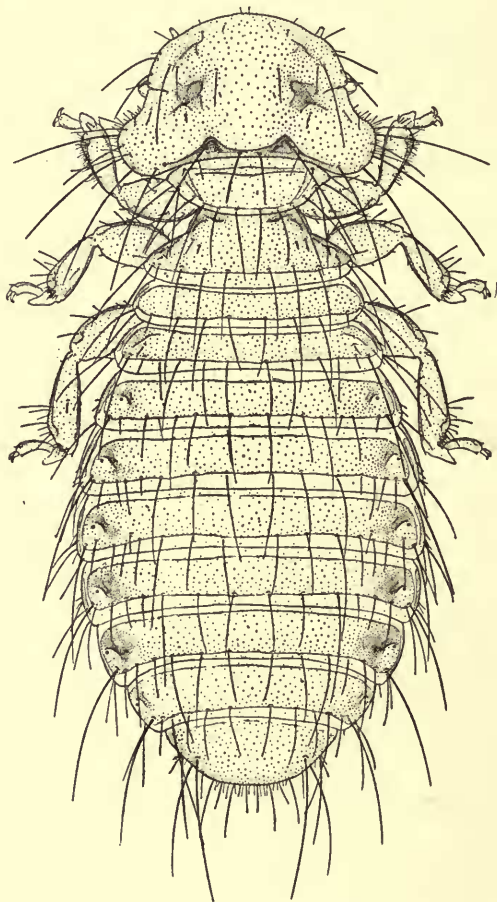


FIG. 18. *Cuculiphilus fasciatus* (Scopoli), female.

Burmeister (1838: 427) and Giebel (1874: 94, pl. 10, fig. 3) described as *Docophorus superciliosus* an insect that seems to be certainly the same as *Penenirmus auritus* (Scopoli) and is from *Dryobates major* (Linn.). Harrison (1916: 88) listed *auritus* in *Phlopterus* with *superciliosus* as a synonym.

Neotype male (Fig. 19; Pl. I, fig. 4) and neallotype female (Fig. 20) of *Penenirmus auritus* (Scopoli) from *Dryobates major pinetorum* (Brehm) from Yugoslavia (British Museum (Natural History) collection, slide No. 498). *Neoparatypes*: 12 males and 21 females from same host-form, Yugoslavia and NE. Poland; 23 males and 26 females from *Dryobates major major* (Linn.), Estonia.

Measurements in mm.

	Male		Female	
	Length	Breadth	Length	Breadth
Head . . .	0.53	0.48	0.57	0.50
Prothorax. . .	..	0.29	..	0.30
Pterothorax . . .	0.40	0.46	0.43	0.51
Abdomen . . .	0.93	0.60	1.12	0.65
Total . . .	1.72	..	1.99	..
Genitalia . . .	0.28	..	..	..

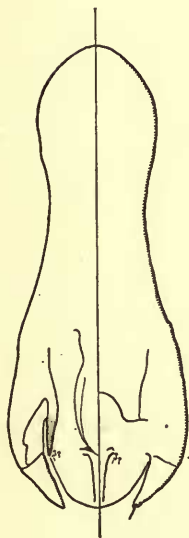


FIG. 19

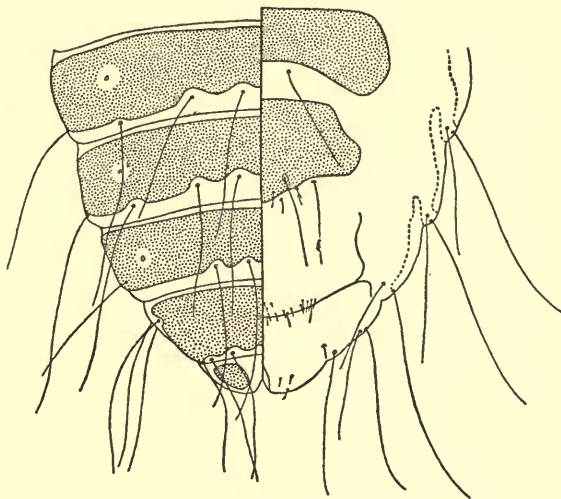


FIG. 20

FIGS. 19-20. *Penenirmus auritus* (Scopoli): 19. Male genitalia. 20. Terminal segments of female abdomen. $\times 87$.

Neotype of *Penenirmus superciliosus* (Burmeister) a male from *Dryobates m. major* (Linn.), Estonia (Meinertzhagen collection, slide No. 1568), agreeing with our description and figures of the neotype of *Penenirmus auritus* (Scopoli).

Pediculus dentatus (p. 383)

The host-record is merely '*in Anate*', but as the next species described by Scopoli is from *Anas boschas*, now known as *A. platyrhynchos* Linn., we think it only reasonable to assume that *dentatus* was from the same host, the specific name of which was inadvertently omitted. The description is definitely that of an *Anatoecus*. Eichler

(1946: 75) selected *Anas platyrhynchos* as type-host of this species, but without erecting neotypes.

We can find nothing in the subsequent literature that adds anything to our knowledge of this species; Harrison (1916: 13, 93) referred it to *Philopterus*, placing most

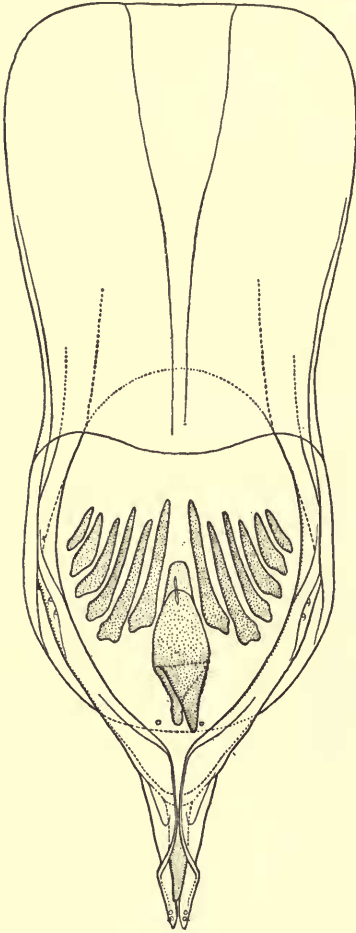


FIG. 21

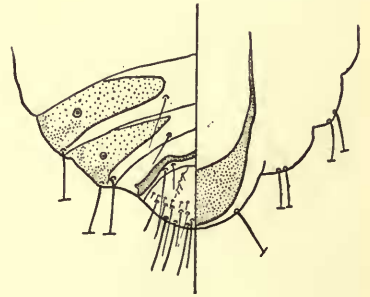


FIG. 22

FIGS. 21-22. *Anatoecus dentatus* (Scopoli), male. 21. Genitalia. 22. Terminal segments of abdomen. $\times 97$.

of the duck-infesting species as synonyms, but pending redescription of the numerous species that have been described from ducks we are unable to suggest which names are synonyms of *Anatoecus dentatus* (Scopoli).

Cummings (1916: 652) was the first author to draw attention to the two distinct forms of genitalia found in male *Anatoecus*—those with and those without the so-called 'effractor'. Unfortunately his otherwise excellent account of various species found on the Anatidae is rendered largely useless by his failure to give any indication of the

host of the majority of the species that he figured. Cummings did not discuss the distribution of the two groups of species, but it has been found that on all the European ducks from which material is available there are two species of *Anatoecus*, the males of which are separable by the presence or absence of the effractor in addition to other less obvious characters. It has not been possible to assign the females to the different males with certainty, and for this reason no female neallotype nor neoparatypes will be designated for *dentatus* or other species of *Anatoecus* with which we shall deal. Cummings made *Philopterus icterodes* Nitzsch the type-species of *Anatoecus* and placed it in the group without an effractor; this species will be dealt with later and Cummings's interpretation will be followed. Cummings did not mention *dentatus* Scopoli, and in order to fix representative species of the two main groups by the erection of neotypes and publication of figures we have chosen the species from *Anas platyrhynchos* in which the effractor is present to bear the name *dentatus* Scopoli.

Measurements in mm.

	Male	
	Length	Breadth
Head . . .	0.47	0.43
Prothorax . . .	..	0.28
Pterothorax . . .	..	0.37
Abdomen . . .	0.72	0.60
Total . . .	1.45	..
Genitalia . . .	0.46	..

Measurements in mm. of heads of specimens examined

Individual No.	1	2	3	4	5	6	7	8	9	10
Total length in midline .	0.47	0.50	0.47	0.48	0.45	0.45	0.50	0.46	0.47	0.48
Length of hyaline margin .	0.16	0.17	0.16	0.16	0.15	0.15	0.17	0.16	0.15	0.15
Breadth at temples .	0.43	0.43	0.42	0.43	0.42	0.42	0.43	0.41	0.42	0.43
Breadth at base of hyaline margin	0.25	0.26	0.25	0.25	0.25	0.26	0.27	0.24	0.26	0.25

Neotype male (Figs. 21-22; Pl. I, fig. 5) of *Anatoecus dentatus* (Scopoli) from *Anas p. platyrhynchos* Linn. from NE. Poland (Meinertzhagen collection, slide No. 4176). *Neoparatypes*: 9 males from same host-form, Poland and England.

Pediculus crassicornis (p. 383)

The host is *Anas Boschas* and the louse is undoubtedly an *Anaticola*.

Schränk (1781: 503) described as *Pediculus Anatis* a form which is certainly partly *crassicornis* and which will be discussed later; his host is '*Anas Boschas*, varietas fera', but there is some evidence of confusion with *Anaticola anseris* (Linn.). J. C. Fabricius (1798: 571) also described a *Pediculus Anatis* from *Anas Boschas*, his description being apparently independent. *Nirmus crassicornis* 'Olfers' (see Harrison, 1916: 13) does not exist, von Olfers correctly attributing the name to Scopoli, though his host-records indicate the confusion between this species and *anseris* for which Schränk appears to be responsible. Nitzsch (1818: 292) proposed *Philopterus* (*Lipeurus*)

squalidus as a *nomen novum* for *Pediculus anatis* Fabricius; this name, also, is a synonym of *Anaticola crassicornis* (Scopoli).

This species is distinguished from *Anaticola anseris* (Linn.) (see Clay and Hopkins, 1950: 239) by the characters of the anterior region of the head and the shorter penis (see measurements).

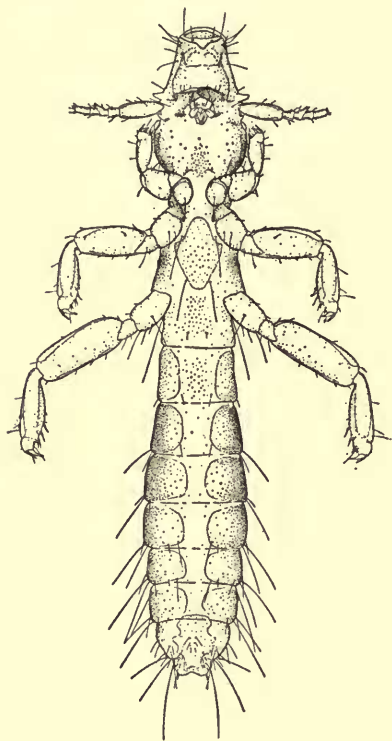


FIG. 23



FIG. 24

FIGS. 23-24. *Anaticola crassicornis* (Scopoli): 23. Male. 24. Male genitalia. $\times 144$; a. Tip of paramere from side. $\times 437$.

Measurements in mm.

	Male		Female	
	Length	Breadth	Length	Breadth
Head . . .	0.67	0.43	0.68	0.46
Prothorax. . .	..	0.27	..	0.30
Pterothorax . . .	..	0.45	..	0.47
Abdomen . . .	1.63	0.50	2.10	0.53
Total . . .	2.92	..	3.40	..
Genitalia . . .	0.70	..	..	..

Length of penis (number of specimens in brackets).

Anaticola crassicornis . . . 0.13 mm. (1), 0.15 (7), 0.16 (1).
Anaticola anseris . . . 0.27 mm. (3).

Neotype male (Figs. 23–24) and *neallotype* female (Fig. 25) of *Anaticola crassicornis* (Scopoli) from *Anas p. platyrhynchos* Linn., from NE. Poland (Meinertzhagen collection, slide No. 4242). *Neoparatypes*: 12 males and 20 females from same host-form, Poland, Hungary, and the British Isles.

Pediculus pilosus (p. 384)

The host is *Fulica atra* Linn., but all the description given is that the louse has a red head, a long abdomen, and a particularly hairy anus with the hairs parallel.

Although this description is extremely unsatisfactory and Harrison (1916: 17) rejected *pilosus* as unrecognizable, we think that the description of the anus can only apply (among coot-parasites) to a *Pseudomenopon*, and the other characters are not inconsistent with this identification. *Pseudomenopon* could certainly be described as having a red head and its abdomen is moderately elongate, much more so than that of *Incidifrons*, for instance, which seems the only alternative.

The species was redescribed as *Menopon tridens* by Burmeister (1838: 440) from material from the same host (*Fulica atra*); Piaget (1880: 480), wrongly taking *Gallinula chloropus* as the type-host of *tridens*, renamed the form from *Fulica atra* as *Menopon tridens* var. *major* (preoccupied by *Menopon quadrifasciatum* var. *major* Piaget 1880: 441); Eichler (1937: 97), noting that the name of Piaget's variety from the coot was preoccupied, renamed it *Pseudomenopon thompsoni*. Mjöberg (1910: 51) made *Menopon tridens* 'N.' the type-species of his genus *Pseudomenopon*.

Neotype male and *neallotype* female of *Pseudomenopon pilosum* (Scopoli) from *Fulica a. atra* Linn. from Ireland (Meinertzhagen collection, slide No. 16388). These specimens agree with the figures published by Ferris (1924, *Parasitology*, 16: 64, fig. 4), although the male drawn by Ferris was from the American coot, *Fulica a. americana* Gmelin. The stout spine-like seta and the smaller seta below it on each side of the dorsal surface of the prothorax are not shown in fig. 4a (Ferris, 1924), nor are the three setae on each side of the dorsal surface of the metathorax. *Neoparatypes*: 12 males and 41 females from *Fulica a. atra* Linn., British Isles.

Neotype of *Pseudomenopon tridens* (Burmeister) a male (Meinertzhagen collection, slide No. 10510) from *Fulica a. atra* Linn. from Ireland. This specimen agrees with the neotype of *P. pilosum* (Scopoli).

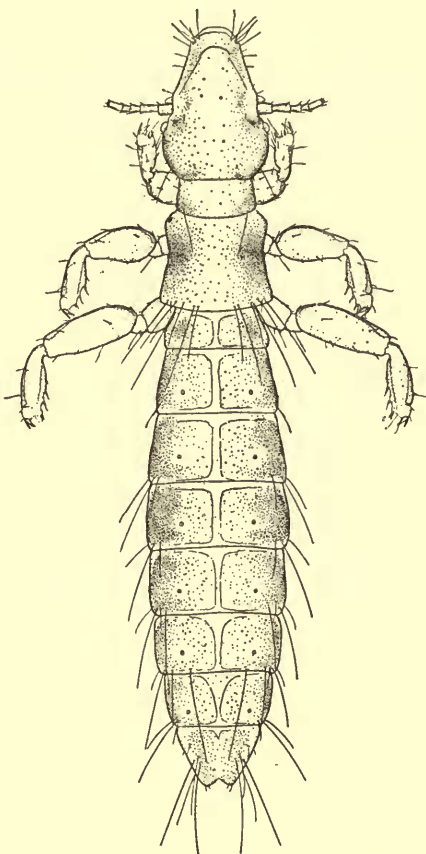


FIG. 25. *Anaticola crassicornis* (Scopoli), female.

The types of *Pseudomenopon thompsoni* Eichler (*Menopon* var. *major* Piaget 1880: 480 *nec* 441) are in the British Museum and also agree with the neotypes of *P. pilosum* (Scopoli).

Pediculus colymbinus (p. 384)

The host is *Colymbus auritus* Linn. (= *Podiceps auritus* (Linn.) of European authors), and Scopoli states that young specimens have an ovate abdomen with elliptical black dorsal spots and that the adult becomes rufous. This description is

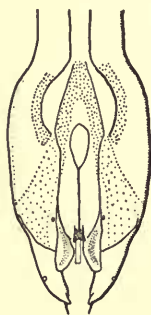


FIG. 26

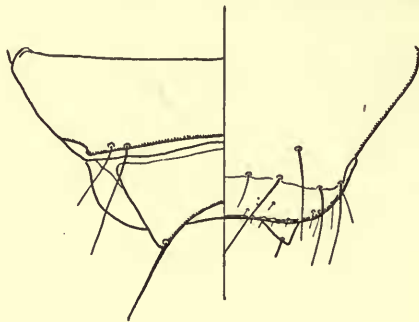


FIG. 27.

FIGS. 26-27. *Aquanirmus colymbinus* (Scopoli), male: 26. Genitalia. $\times 164$.
27. Terminal segments of abdomen. $\times 223$.

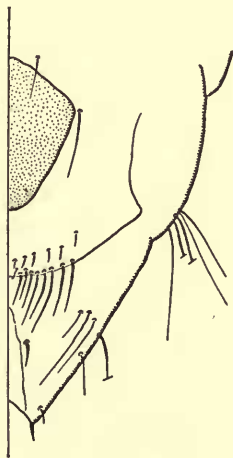


FIG. 28

FIG. 28. *Aquanirmus colymbinus* (Scopoli), terminal segments of female abdomen, ventral. $\times 208$.

extremely inadequate, but the black dorsal spots (if not gut-contents) confine us to the Ischnocera and the only genus of Ischnocera reliably reported from the grebes is *Aquanirmus*. Denny (1842) described a *Nirmus fusco-marginatus* (a male *Aquanirmus*) from the same host and a *Nirmus podiceps* (a female of the same genus) from another

species of grebe, and later authors have identified what Scopoli considered to be young specimens with *N. podiceps* Denny. Although thinking the identification of *colymbinus* as an *Aquanirmus* far from certain, we see nothing in the description that disproves it and there is no object in disturbing the accepted application of Scopoli's name. We cannot accept the assumption that Denny's male and female are conspecific pending a much more careful examination of the forms occurring on different species of grebes than has yet been made, but the lectotype of *fusco-marginatus* Denny agrees with our male neotype of *colymbinus*.

Measurements in mm.

	Male		Female	
	Length	Breadth	Length	Breadth
Head . . .	0.46	0.35	0.53	0.42
Prothorax. . .	..	0.28	..	0.33
Pterothorax . . .	..	0.37	..	0.45
Abdomen . . .	0.87	0.40	1.47	0.55
Total . . .	1.65	..	2.35	..
Genitalia . . .	0.37	..	..	..

Neotype male (Figs. 26-27; Pl. II, fig. 1) and *neallotype* female (Fig. 28; Pl. II, fig. 2) of *Aquanirmus colymbinus* (Scopoli) from *Colymbus auritus* Linn. from Devon, England (Meinertzhagen collection, slide No. 14736). *Neoparatypes*: 1 male and 6 females from the same host-form, England.

There are two males and one nymph of *Nirmus fusco-marginatus* from *Podiceps auritus* (= *Colymbus auritus*) in the Denny collection; one of these males (slide No. 349) is hereby selected as lectotype of *Aquanirmus fusco-marginatus* (Denny).

Pediculus ardealis (p. 384)

Harrison (1916: 11) wrongly considered this name to be a synonym of *Ardeicola ardeae* (Linn.), doubtless through misreading of the host-record '*Ardea Ciconia*' (= *Ciconia ciconia*). Of the species found on *Ciconia ciconia* (Linn.), Scopoli's very poor description could only apply to *Neophilopterus incompletus* (Denny) or to a nymph of *Ardeicola ciconiae* (Linn.). But, in addition to the description, Scopoli gives two references: to the less hairy figure on Frisch *Insect.* 5, pl. 4, and to Linné, 1758, p. 613, No. 26. The reference to Frisch is an obvious slip, for plate 4 only contains one insect, but the reference to Linné is to *Ardeicola ciconiae*, and under this species Linné refers to Frisch's plate 6; the latter plate does show two insects, one with hairs and the other without, both belonging to the genus *Ardeicola*. It is, therefore, certain that Scopoli's insect was the *Ardeicola* and not the *Neophilopterus*.

Neotype of *Ardeicola ardealis* (Scopoli) a male from *Ciconia c. ciconia* (Linn.) from South Africa (British Museum collection, slide No. 430) that agrees with the neotype of *Ardeicola ciconiae* (Linn.) (see Clay and Hopkins, 1950: 253).

Pediculus ovalis (p. 384)

The host is *Scolopax arquatus* and the description states that the louse is smaller than *Pediculus humanus*, has eight abdominal segments, and a depressed ovate body,

the antennae are shorter than the head but longer than the thorax, and the colour is rufous-brown. No subsequent author has anything useful to say about the species, and Harrison (1916: 17) discards it as unrecognizable, but we claim that it is recognizable with certainty.

Admittedly there is no species on the curlew that agrees perfectly with Scopoli's

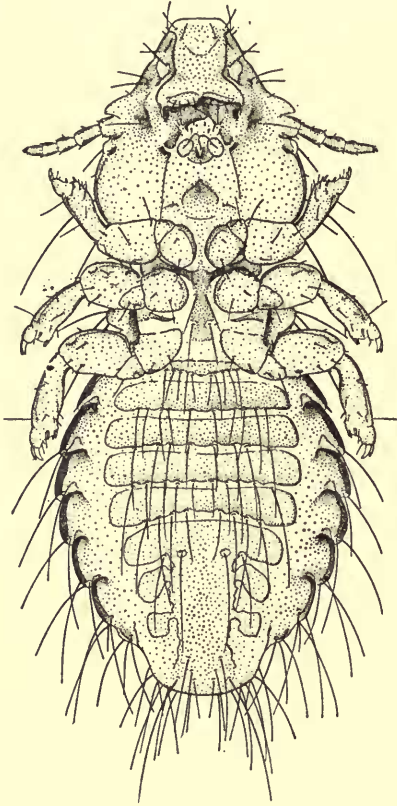


FIG. 29

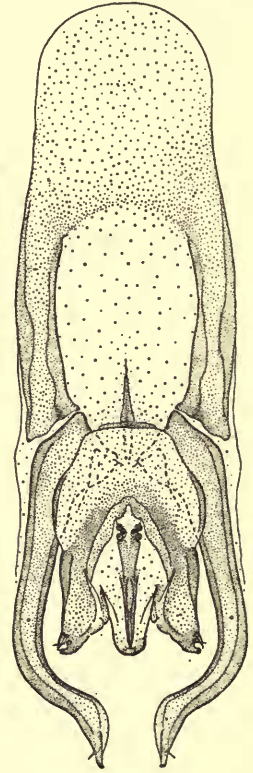


FIG. 30

FIGS. 29-30. *Cummingssiella ovalis* (Scopoli): 29. Male. 30. Male genitalia.

description, and in particular none with an 8-segmented abdomen, but there are only three species normally found on this host that could possibly be described as rufous-brown and oval—a *Cummingssiella*, an *Austromenopon*, and perhaps *Saemundssonina humeralis* (Denny). Quite apart from the facts that the *Cummingssiella* fits the colour-character best and is by far the commonest of the three species (and therefore the most likely to have been observed by Scopoli), the description of the antenna convinces us that this is the form that Scopoli described. In the *Austromenopon* the antennae are concealed and the palps (sometimes mistaken for antennae in early descriptions) certainly do not project far enough beyond the margin of the head to be described as being longer than the thorax, but in the male of the *Cummingssiella* the antennae are almost as long as the thorax. This identification of Scopoli's species

involves the relegation of *Cummingsiella testudinaria* (Denny) to synonymy, but this is in any case inevitable because *Docophorus testudinarius* Denny and *D. biseriatis* Denny (the name used on p. 250 in Denny's explanation of his plate 1, fig. 6) are not independent names but merely misdeterminations of Children's *Nirmus testudinarius*

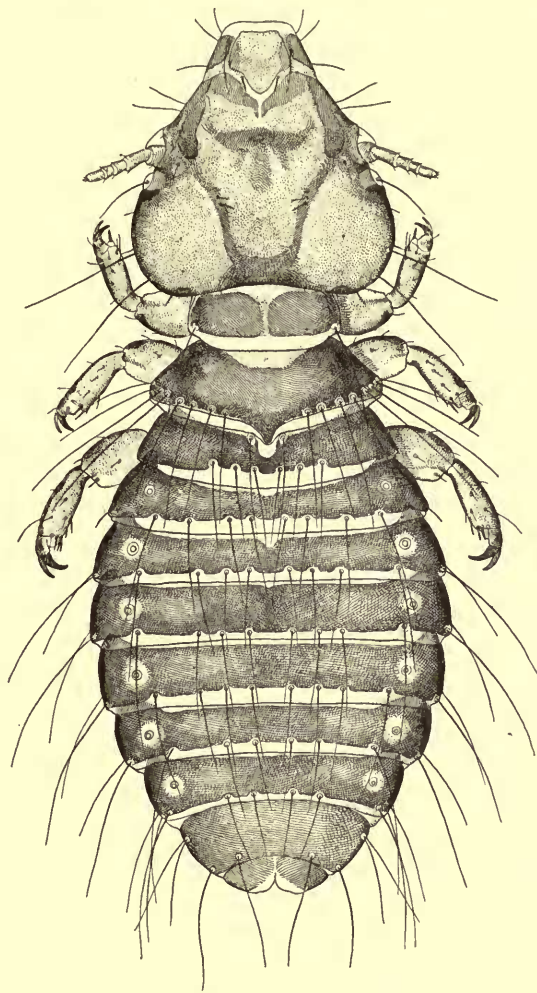


FIG. 31. *Cummingsiella ovalis* (Scopoli), female.

and *N. biseriatus* and therefore invalid. The only other synonym of *Cummingsiella ovalis* (Scopoli) is *Nirmus pseudonirmus* Nitzsch.

Neotype male (Figs. 29–30) and *neallotype* female (Fig. 31) of *Cummingsiella ovalis* (Scopoli) from *Numenius a. arquatus* (Linn.) from Yugoslavia (British Museum collection, slide No. 522). *Neoparatypes*: 86 males and 99 females from the same host-form, Yugoslavia, Hungary, and the British Isles.

Neotype of *Cummingsiella pseudonirmus* (Nitzsch) a male (British Museum (Natural

History), slide No. 523) from *Numenius a. arquatus* (Linn.) from Scotland, which agrees with the neotype of *C. ovalis* (Scopoli).

Measurements in mm.

	Male		Female	
	Length	Breadth	Length	Breadth
Head . . .	0.70	0.72	0.75	0.73
Prothorax. . .	..	0.42	..	0.45
Pterothorax . . .	..	0.65	..	0.70
Abdomen . . .	1.16	1.03	1.50	1.11
Total . . .	2.10	..	2.56	..
Genitalia . . .	0.65	..	..	..

The Denny collection contains one male and two female *Cummingsiella* labelled *Docophorus testudinarius* but without host-record. These specimens agree with the neotypes of *C. ovalis* (Scopoli).

Pediculus junceus (p. 384)

The host is *Tringa vanellus* = *Vanellus vanellus* (Linn.), and the description is obviously that of a *Degeeriella s.l.* Denny (1842: 53, 143, pl. 9, fig. 5) made an identification of this species with which we are in full agreement; his specimens (3 females) came from the same host, although on p. 143 he added two other hosts. We do not agree with Harrison in considering *Pediculus tringae* Schrank 1803 (*nec* O. Fabricius, 1780) to be the present species, and it will be discussed separately. On the other hand, in spite of Schrank's definite statement (1803: 190) that his *Pediculus Vanelli*, from 'Kybize' (= *Vanellus vanellus*) is not Scopoli's insect we can find nothing in his description that supports this statement and suspect that the explanation must be that he misidentified *junceus*; our suspicion that this is the case is much strengthened by the fact that we have been unable to find any nirmoid species except *junceus* on *Vanellus vanellus*.

Measurements in mm.

	Male		Female	
	Length	Breadth	Length	Breadth
Head . . .	0.47	0.30	0.47	0.32
Prothorax. . .	..	0.22	..	0.22
Pterothorax . . .	..	0.30	..	0.32
Abdomen . . .	0.93	0.41	1.03	0.45
Total . . .	1.64	..	1.82	..
Genitalia . . .	0.30	..	..	..

Neotype of *Quadriceps junceus* (Scopoli) a male (Fig. 32; Pl. II, fig. 3) and *neallotype* a female (Fig. 33; Pl. II, fig. 4) from *Vanellus vanellus* (Linn.) from Italy (British Museum (Natural History), slide No. 524). *Neoparatypes*: 154 males and 140 females from the same host-form, Italy and the British Isles.

Pediculus cuspidatus (p. 385)

Denny (1842: 51, 130, pl. 6, fig. 2) redescribed as *Nirmus cuspidatus* a species that he took to be the same as that of Scopoli, though he thought it necessary to query the

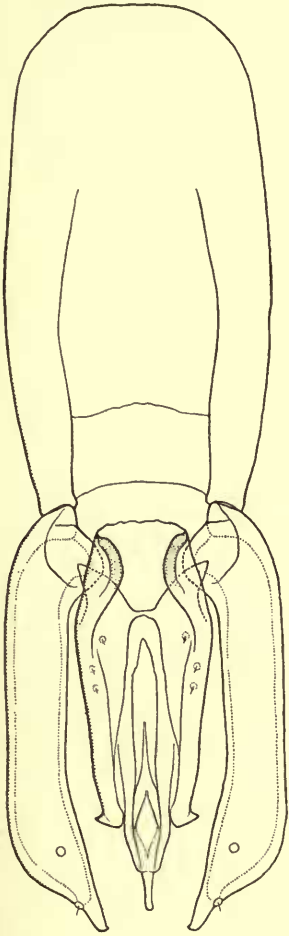


FIG. 32

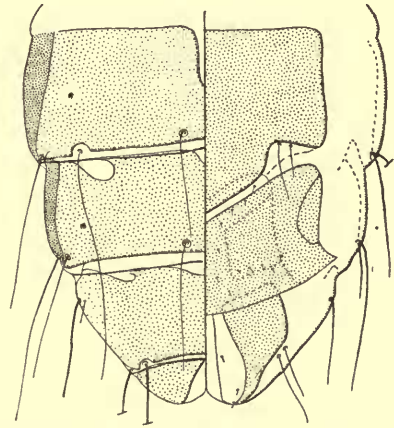


FIG. 33

FIGS. 32-33. *Quadriceps junceus* (Scopoli): 32. Male genitalia. 33. Terminal segments of female abdomen. $\times 125$.

determination. Scopoli's host-record is '*Rallo aquat.*', and Denny's original specimen (no longer in his collection) evidently also came from *Rallus aquaticus* Linn., because this is the only host mentioned on p. 51. Scopoli's description is not by any means diagnostic, but so far as it goes it fits *Rallicola* at least as well as can be expected from these old descriptions. No subsequent author seems to have seen the species.

Neotype male (Figs. 34-35; Pl. II, fig. 5) and *neallotype* female (Fig. 36; Pl. II, fig. 6) of *Rallicola cuspidatus* (Scopoli) from *Rallus a. aquaticus* Linn. from Kent,

England (Meinertzhagen collection, slide No. 8332). *Neoparatypes*: 13 males and 48 females from the same host-form, British Isles.

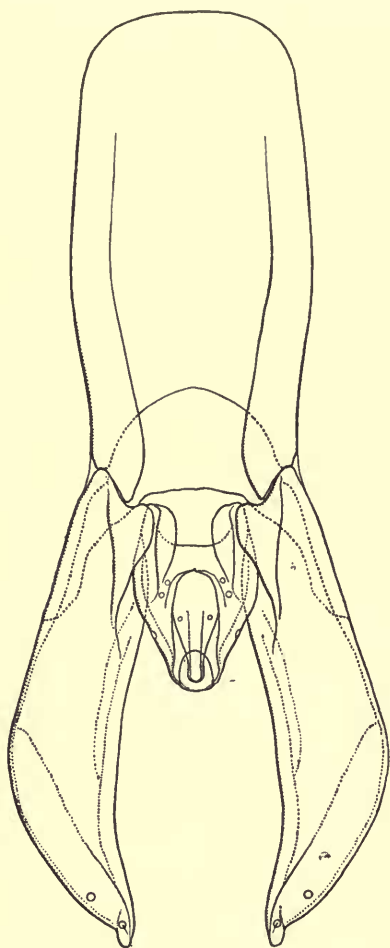


FIG. 34

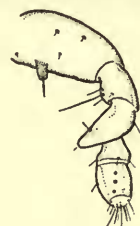


FIG. 35

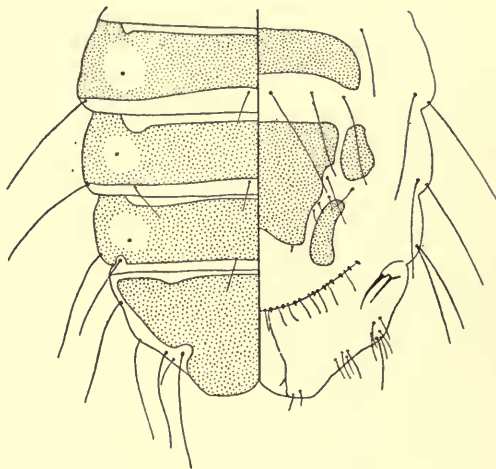


FIG. 36

FIGS. 34-36. *Rallicola cuspidatus* (Scopoli): 34. Male genitalia. 35. Male antenna. $\times 173$.
36. Terminal segments of female abdomen. $\times 115$.

Measurements in mm.

	Male		Female	
	Length	Breadth	Length	Breadth
Head . . .	0.37	0.30	0.42	0.35
Prothorax. . .	..	0.19	..	0.22
Pterothorax . . .	..	0.27	..	0.30
Abdomen . . .	0.62	0.35	0.85	0.43
Total . . .	1.11	..	1.44	..
Genitalia . . .	0.25	..	..	..

Pediculus bidentatus (p. 385)

The host is *Columba palumbus* Linn., and the reference to a hemispherical head rules out all genera of Mallophaga known from European pigeons except *Coloceras* and *Campanulotes*. *Pediculus bidentatus* was constantly placed as a synonym of *Campanulotes compar* (Burmeister), from *Columba livia domestica*, until Harrison (1916) reversed this arrangement. Although we find nothing in the original description of *bidentatus* that enables us to decide which of the two genera Scopoli had before him, we think it best to accept this long-standing generic determination of his species.

This species is near *C. compar* (Burmeister) from *Columba livia*, from which it is distinguished by its greater size (see measurements below). The chaetotaxy and

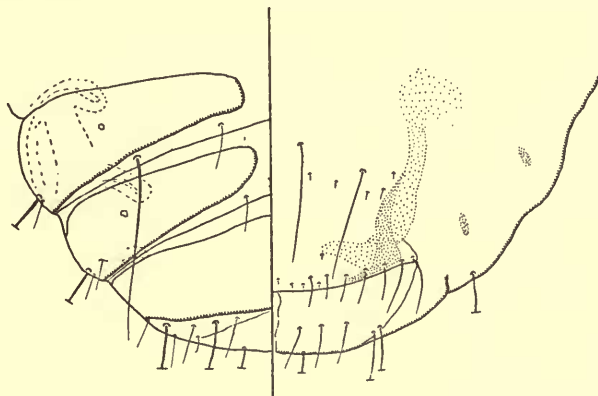


FIG. 37. *Campanulotes bidentatus* (Scopoli), terminal segments of female abdomen. $\times 121$.

general characters are as figured by K  ler (1939: 158-160, figs. 89-91) for *C. compar* except that in fig. 89 a median ventral seta has been omitted on segments VI and VII; in fig. 90 the latero-dorsal temple spine has been omitted, the dorsal setae on abdominal segments II-III should be about twice as long as shown, and the median dorsal setae on segments V-VI have been omitted; and in fig. 91 the long ventral seta on the last abdominal segment has been omitted. The genital region of the female of *C. bidentatus* is shown in Fig. 37.

Measurements in mm.

	Male		Female	
	Length	Breadth	Length	Breadth
Head . . .	0.34	0.47	0.43	0.53
Prothorax. . .	..	0.29	..	0.34
Pterothorax . . .	..	0.37	..	0.42
Abdomen . . .	0.61	0.57	0.90	0.66
Total . . .	1.20	..	1.58	..

Neotype of *Campanulotes b. bidentatus* (Scopoli) a male (Pl. III, fig. 1) and *neallotype* a female (Fig. 37) from *Columba p. palumbus* Linn. from Somerset, England (Meinertzhagen collection, slide No. 864). *Neoparatypes*: 63 males and 58 females from the British Isles.

Comparison of breadth of heads, in mm.

Species and No. of specimens	Males									
Breadth in mm.	0.38	0.39	0.40	0.44	0.45	0.46	0.47	0.48		
<i>C. bidentatus compar</i> . .	2	10	7	..	..	..	..	..
<i>C. bidentatus bidentatus</i>. .	..	..	..	1	4	5	12	1		
	Females									
Breadth in mm.	0.43	0.44	0.45	0.46	0.47	0.49	0.50	0.51	0.52	0.53
<i>C. bidentatus compar</i> . .	1	4	5	8	2	..	..	..	..	..
<i>C. bidentatus bidentatus</i>. .	..	..	..	..	..	5	13	9	5	4

Pediculus albiventris (p. 385)

The original host-record is '*Motacilla Troglodyte*', which Harrison (1916: 87) wrongly took to mean *Motacilla* and *Troglodytes*, whereas only one species, the bird now known as *Troglodytes troglodytes* (Linn.), is mentioned. Clay and Meinertzhagen (1938: 73) showed that *Pediculus albiventris* (Scopoli) is the same as *Docophorus*

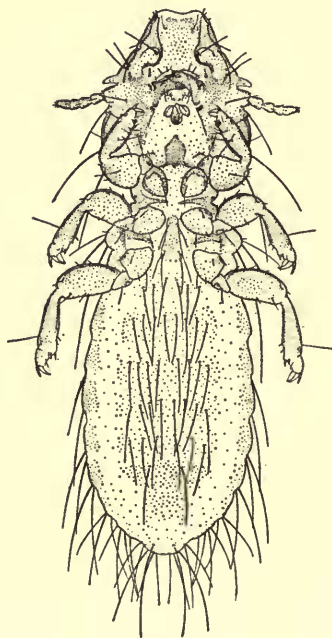


FIG. 38

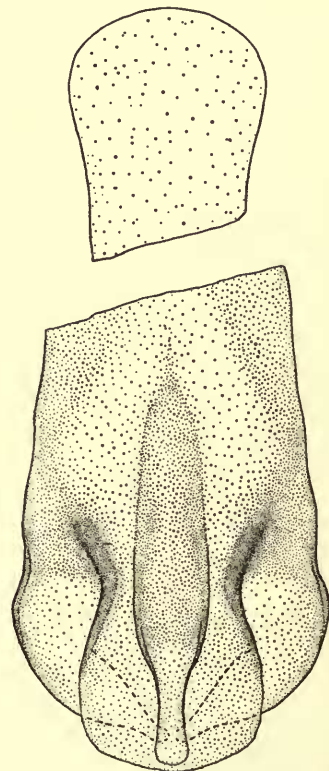


FIG. 39

FIGS. 38-39. *Penenirmus albiventris* (Scopoli): 38. Male. 39. Male genitalia. $\times 600$.

troglydytis (Waterston), from *Troglodytes troglodytes zetlandicus* Hartert, and made it the type species of *Penenirmus*. J. C. Fabricius (1776: 310) renamed the species *Pediculus motacillae*.

Measurements in mm.

	Male		Female	
	Length	Breadth	Length	Breadth
Head . . .	0.42	0.37	0.48	0.45
Prothorax. . .	..	0.20	..	0.25
Pterothorax . . .	..	0.33	..	0.40
Abdomen . . .	0.73	0.45	1.13	0.63
Total . . .	1.33	..	1.85	..

Neotype of *Penenirmus albiventris* (Scopoli) a male (Figs. 38–39) and *neallotype* a female (Fig. 40) from *Troglodytes t. troglodytes* (Linn.) from Wiltshire, England (Meinertzhagen collection, slide No. 15399). *Neoparatypes*: 44 males and 52 females from various subspecies of *Troglodytes troglodytes* from the British Isles.

These neotypes are also automatically neotypes of *Penenirmus motacillae* (J. C. Fabricius)

PONTOPPIDAN, 1763 (*Den Danske Atlas*. 1
Kiöbenhavn: 699)

Only one of the names of Mallophaga published in this work is new.

Pediculus strigis (p. 699, pl. xxx)

This species is stated to be new and is described with a reference to plate xxx *b*, a figure of an obvious *Philopterus s.l.* There is no host-record other than that provided by the specific name. Before we go on to discuss the identity of the species it will be as well to consider the subsequent history of the name.

Scopoli (1772: 124) gives a completely independent description of a *Pediculus strigis* which is also clearly a *Philopterus s.l.*; there is no host-record, but as he describes a Hippoboscid from *Strix bubo* we think it nearly certain that this species was also the host of the louse. J. C. Fabricius (1775: 806) applied the name *Pediculus strigis* to *Pediculus haematopus* Scopoli, Fabricius's *nomen novum* thus being not only unnecessary but twice preoccupied, to say nothing of the fact that *haematopus* (and therefore *strigis* Fabricius) is not from an owl but from a hawk. Müller (1776: 185) mentioned the name with a reference to

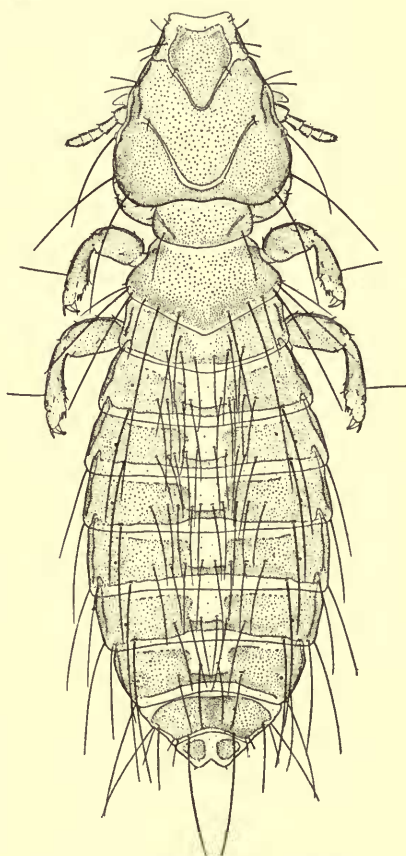


FIG. 40. *Penenirmus albiventris* (Scopoli), female.

'P.D.A.' (= Pontoppidan's *Danske Atlas*). O. Fabricius (1780: 216) gave references to Pontoppidan and Müller and also an independent description of the differences between his material (from *Strix nyctea*) and Pontoppidan's plate. Harrison (1916: 18) did not know *strigis* Pontoppidan and rejected all the other uses of the name as either unrecognizable or preoccupied. The position may be summarized as follows:

P. strigis Pontoppidan is a valid name and easily determinable to the genus.

P. strigis Scopoli may or may not be Pontoppidan's species but is certainly congeneric.

P. strigis J. C. Fabricius is an unwanted *nomen novum* for *Pediculus* (now *Craspedorrhynchus*) *haematopus* Scopoli. It is twice preoccupied and is not congeneric with the others.

P. strigis 'Müller' does not exist, Müller merely listing Pontoppidan's species.

P. strigis O. Fabricius is partly a reference to Pontoppidan and partly a new species, the name of the latter thrice preoccupied.

In the circumstances it seems to us that much the most satisfactory course is to fix *strigis* Pontoppidan in such a way that it is the same as *strigis* Scopoli and (if possible) so that its restoration does not upset any well-established name of later date. Not only does *Bubo bubo*, which we consider to be the host of Scopoli's species, occur in Denmark, but Pontoppidan definitely described another parasite from this host, so that it is very probable that his louse came from this species of bird. Two species of *Strigiphilus* occur on *Bubo bubo*, one of which has long been known as *S. heteroceros* (Nitzsch) whereas the other had not been named until Eichler (1949: 14) named it '*Neodocophorus*' *hopkinsi*, though it is probably a component of *S. cursor* (Burmeister) as described by Giebel (1874: 70). The first species, however, cannot retain the name *Strigiphilus heteroceros* (Nitzsch), because this species was not described until 1861 whereas Grube used the same name (*Docophorus heterocerus*) for a species found on *Strix uralensis liturata* Tengmalm ten years earlier (Grube, 1851: 469). Eichler (1949: 11) has correctly pointed out this fact and renamed the species with sexually dimorphic antennae found on *Bubo bubo* as *Strigiphilus goniodicerus*. Both the species concerned have, therefore, been named and both the names are of equal seniority, so it does not matter to which species we apply the name *strigis* Pontoppidan (his figure applying fairly well to either), so we have selected *hopkinsi* to bear Pontoppidan's name.

Measurements in mm.

	Male	
	Length	Breadth
Head . . .	0.69	0.63
Prothorax. . .	..	0.40
Pterothorax . . .	..	0.56
Abdomen . . .	0.94	0.84
Total . . .	1.93	..
Genitalia . . .	0.47	..

This species is distinguished from *S. goniodicerus* Eichler, from the same host, by the antennae being similar in the two sexes and by the smaller and less complicated

male genitalia. Although there are two species of females represented in the available material it has not been possible to assign them with certainty to the males, so no neallotype or female neoparatypes have been erected.

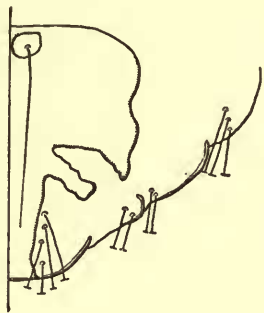


FIG. 41

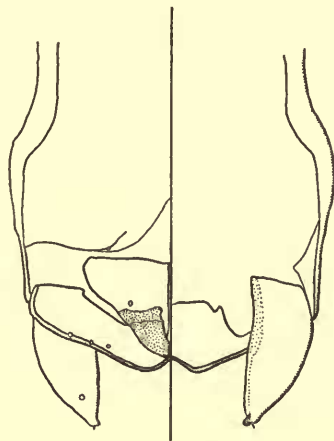


FIG. 42

FIGS. 41-42. *Strigiphilus strigis* (Pontoppidan), male: 41. Terminal segments of abdomen. $\times 74$.
42. Genitalia. $\times 294$.

Neotype of *Strigiphilus strigis* (Pontoppidan) a male (Figs. 41-42, Pl. III, fig. 2) from *Bubo bubo* (Linn.) from Russia (Meinertzhagen collection, slide No. 10975a). *Neoparatypes*: 9 males from the same host-form, Russia and Italy (captive host).

Neotype of *Strigiphilus strigis* (Scopoli) a male (Meinertzhagen collection, slide No. 10975b) from *Bubo bubo* (Linn.) from Russia, that agrees with the neotype of *Strigiphilus strigis* (Pontoppidan).

SCOPOLI, 1772 (*Annus V Historico-Naturalis*. [PC.] 5. *Observationes Zoologicae*.
Lipsiae: 124-125)

The descriptions in this work are very poor. Fortunately they are also very few.

Pediculus hirci junioris (p. 124)

We only mention this name because we feared at first that it might be the earliest name for a chewing louse of the goat. But we are certain that the description does not refer to a member of the Mallophaga and we think it likely that the insect was one of the Anoplura.

Pediculus strigis (p. 124)

This name has been dealt with under *Pediculus strigis* Pontoppidan and a neotype has been erected. *Strigiphilus strigis* (Scopoli) is both a homonym and a synonym of *S. strigis* (Pontoppidan).

Pediculus ralli (p. 125)

There is no host-record other than that provided by the specific name, but the host must be assumed to have been some bird that occurs in Carniolia and was included in the genus *Rallus* in Scopoli's time.

The entire description is that the head of the insect is bidentate and the abdomen glabrous, with pilose and crenate sides. Among parasites of the Rallidae this description could only apply to the genus *Incidifrons*, but as we have not seen this genus from any bird that complies with the conditions we have mentioned as necessary assumptions we are unable to erect a neotype for the species. We think it of the first importance that *Incidifrons ralli* (Scopoli) should eventually be fixed in such a way that *Incidifrons ralli* (Denny) becomes a synonym as well as a homonym, thus avoiding the confusion that would be caused by the transfer of the name *ralli* from one species to another. We therefore intend to assume in all future work that the host of *Incidifrons ralli* (Scopoli), like that of *I. ralli* (Denny), was *Rallus a. aquaticus* Linn., and we most strongly urge other workers to make the same assumption. There are no specimens of *I. ralli* in the Denny collection.

Pediculus fringillae (p. 125)

The entire description is that the head is bidentate and the sides of the abdomen are pilose and rugose, but among parasites of the birds included in *Fringilla* in Scopoli's time only *Philopterus* fits this description. There is no host-record other than that provided by the name, so we have chosen as host of our neotype one of the commoner birds included by Scopoli in *Fringilla*, namely, *Fringilla domestica*, now known as *Passer domesticus* Linn.¹

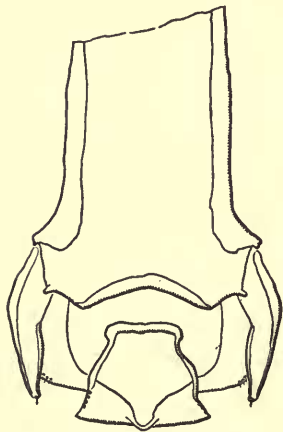


FIG. 43. *Philopterus fringillae* (Scopoli), male genitalia. $\times 319$.

We hope that our action will finally settle the confusion that has arisen (as shown in Part I of this work (Clay and Hopkins, 1950: 270)) through the application of Geoffroy's invalid appellation '*subflavescens*' to the *Philopterus* from this host. Fourcroy (1785: 519) gave the name *Pediculus passeris* to the species described by Geoffroy, and *Philopterus passeris* (Fourcroy) and *P. passeris* (Piaget) (together with *subflavescens* of authors subsequent to Geoffroy) become synonyms of *Philopterus fringillae* (Scopoli).

This species has been discussed above under *P. coarctatus* (Scopoli) 1763, from which it differs in having a median indentation in the hyaline margin of the head, and in the characters of the male genitalia and female genital plate.

Neotype male (Fig. 43; Pl. III, fig. 3; Tables 1 and 3) and *neallotype* female (Fig. 44; Tables 2 and 4-5) of *Philopterus fringillae* (Scopoli) from *Passer d. domesticus* (Linn.)

¹This host is not given in the publication under discussion, in which no species of *Fringilla* are mentioned, but in Part I of the same work, published in 1769, Scopoli refers to *Fringilla domestica* on p. 149.

from Hungary (Meinertzhagen collection, slide No. 8077a). *Neoparatypes*: 47 males and 57 females from the same host-form, Hungary, Estonia, and the British Isles.

Measurements in mm.

	Male		Female	
	Length	Breadth	Length	Breadth
Head . . .	0.55	0.50	0.58	0.56
Prothorax . . .	..	0.29	..	0.32
Pterothorax . . .	..	0.45	..	0.50
Abdomen . . .	0.70	0.68	1.02	0.91
Total . . .	1.45	..	1.85	..
Genitalia . . .	0.31	..	..	..

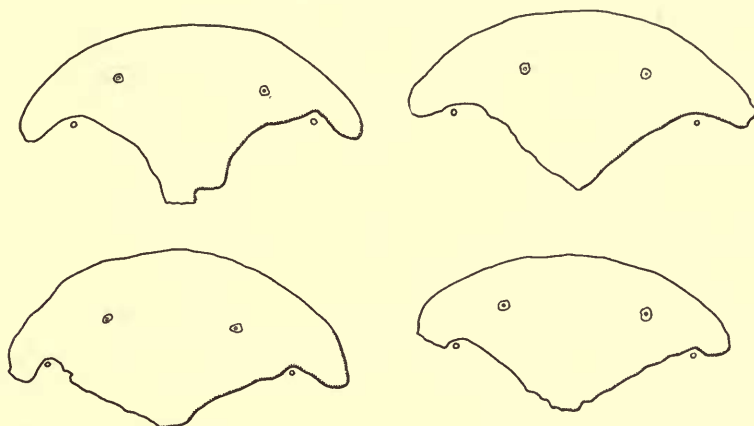


FIG. 44. *Philopterus fringillae* (Scopoli), genital plates of 4 females taken from one host individual. $\times 102$.

Pediculus pari palustris (p. 125)

'Cauda quadriseta, ut in *P. Pari majoris* Linn.' As no differences from Linné's species are mentioned we consider this to be a *nomen nudum*, but in any case the name clearly does not refer to the Mallophaga but to a mite.

J. C. FABRICIUS, 1775 (*Systema Entomologiae*. Flensburgi et Lipsiae: 804-810)

The great majority of the names mentioned in this work have already been dealt with, being either quoted from Linné or entirely unnecessary renamings of Scopoli's species, with descriptions quoted from the latter author. Only the following are genuinely new:

Pediculus vulturis (p. 806)

The description is quite obviously that of a *Laemobothrion*, but the host-record is merely 'Habitat in Indiae orientalis vulturibus'. In these circumstances the most reasonable procedure seems to be to attach the name to a *Laemobothrion* from one of the Indian vultures. We have chosen *Pseudogyps bengalensis* (Gmelin).

This species differs from *L. tinnunculi* (Linn.) (see Clay and Hopkins, 1950: 228)

in the larger size, the shape of the head (Pl. III, figs. 4, 6), in the greater number of prosternal setae¹ and the shape of the sternal plates (Fig. 45), the presence of a line of setae on the lateral margins of the sternal plates, and in details of the male genitalia. No material of *Laemobothrion maximum* (Scopoli) has been seen from *Buteo buteo*, but from Eichler's figures (1941: 363, fig. 28; 1942: 59, fig. 4), and examination of specimens (possibly not conspecific with *maximum*) from other species of *Buteo*, it seems to differ from *vulturis* in the smaller size, the smaller number of prosternal setae, the shape of the prosternal plate, and possibly in the details of the male genitalia.

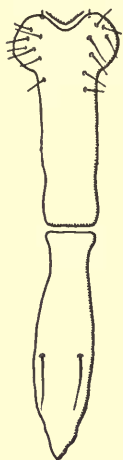


FIG. 45.
Laemobothrion vulturis
(J. C. Fabricius), female
sternal
plates. $\times 31$.

Measurements in mm.

	Male		Female	
	Length	Breadth	Length	Breadth
Head* . . .	1.52	1.70	1.56	1.80
Abdomen . . .	5.76	2.48	6.92	3.02
Total . . .	9.24	..	10.56	..
Genitalia . . .	2.90	..	..	..

* The head is liable to distortion in mounted specimens of *Laemobothrion* and throughout the genus these measurements may show considerable variation in one species.

Neotype male (Pl. III, figs. 4-5) and *neallotype* female (Fig. 45; Pl. III, fig. 6) of *Laemobothrion vulturis* (J. C. Fabricius) from *Pseudogyps bengalensis* (Gmelin) from Deccan, India (Meinertzhagen collection, slide No. 8607). *Neoparatypes*: 1 male and 2 females from the same host-form, Deccan and Siam.

Pediculus procellariae (p. 808)

An elongate, filiform, fuscous species occurring 'in Brasiliae procellariis' can only be a *Halipeurus* or a *Perineus*, the former being the more probable identification because members of this genus are more elongate than those of *Perineus* (Fabricius seems to have been particularly impressed by this character) and also more fuscous. But in view of the number of species of petrels which occur in Brazilian waters the selection of host must be purely arbitrary. Mr. R. L. Edwards informs us that in a paper he is about to publish he will redescribe *Halipeurus procellariae* (J. C. Fabricius) from specimens taken from *Pterodroma m. macroptera* (A. Smith). *Halipeurus constrictiventris* (Pessôa and Guimarães) 1935 will thus become a synonym of *H. procellariae*.

Pediculus diomedae (p. 808)

One of us (Clay, 1940: 300-302) has already discussed this species and erected neotypes from *Diomedea m. melanophris* Temminck. It is perhaps as well to repeat that it is a *Perineus*, not a *Harrisoniella*, has nothing to do with *Harrisoniella ferox* (Giebel), and that the type species of *Harrisoniella* is *Esthioplerum diomedae* Harrison 1916 (*nec* J. C. Fabricius 1775) (= *Lipeurus ferox* Giebel).

¹ Examination of further material suggests that this is an unreliable character owing to individual variation. See Part III (in press) for further notes on *Laemobothrion vulturis*.

Pediculus hirundinis (p. 810)

We have noted above (Clay and Hopkins, 1950: 26) that this name must be ascribed to Linné and have discussed it under that author.

TABLES 1-5, MEASUREMENTS OF *PHILOPTERUS* SPECIESTABLE 1. *Breadth (in mm.) of head at temples of males, with number of specimens*

	0.45- 0.46	0.47- 0.48	0.49- 0.50	0.51- 0.52	0.53- 0.54	0.55- 0.56
<i>coarctatus</i> . . .	..	6	17	4	..	..
<i>fringillae</i> . . .	..	..	3	15	7	2
<i>citrinellae</i> . . .	3	22	2	..	..	..

TABLE 2. *Breadth (in mm.) of head at temples of females, with number of specimens*

	0.47- 0.48	0.49- 0.50	0.51- 0.52	0.53- 0.54	0.55- 0.56	0.57- 0.58	0.59- 0.60	0.61- 0.62
<i>coarctatus</i> . . .	..	..	3	5	4	18	..	..
<i>fringillae</i> . . .	..	..	..	2	6	13	4	5
<i>citrinellae</i> . . .	1	3	6	16	4	..	..	..

TABLE 3. *Cephalic index of males, with number of specimens*

	0.90- 0.91	0.92- 0.93	0.94- 0.95	0.96- 0.97	0.98- 0.99	1.00- 1.01	1.02- 1.03
<i>coarctatus</i> . . .	3	10	7	7	..	..	3
<i>fringillae</i> . . .	..	2	5	10	3	4	..
<i>citrinellae</i> . . .	4	10	9	3	1	..	..

TABLE 4. *Cephalic index of females, with number of specimens*

	0.90- 0.91	0.92- 0.93	0.94- 0.95	0.96- 0.97	0.98- 0.99	1.00- 1.01	1.02- 1.03	1.04- 1.05
<i>coarctatus</i> . . .	3	5	11	4	6	1	..	..
<i>fringillae</i> . . .	..	1	4	7	7	7	3	1
<i>citrinellae</i> . . .	2	8	11	7	2	..	..	..

TABLE 5. *Ratio of breadth: length of female genital plate, with number of specimens in parentheses*

<i>coarctatus</i> . . .	1.38 (1), 1.59 (1),	1.45 (1), 1.69 (2),	1.53 (2), 1.75 (1).	1.54 (1),	1.55 (1),	1.58 (1),
<i>fringillae</i> . . .	1.79 (1),	1.88 (3),	1.91 (1),	1.94 (2),	2.00 (3),	2.10 (1).

LIST OF SPECIES

The synonymy of the following names has been established.

Specific name	Present status	Page
<i>albiventris</i> Scopoli.	<i>Penenirmus albiventris</i> (Scopoli).	28
<i>anatis</i> Fabricius.	<i>Anaticola crassicornis</i> (Scopoli).	17

<i>Specific name</i>	<i>Present status</i>	<i>Page</i>
<i>ardealis</i> Scopoli.	<i>Ardeicola ciconiae</i> (Linn.).	21
<i>auritus</i> Scopoli.	<i>Penenirmus auritus</i> (Scopoli).	15
<i>bidentatus</i> Scopoli.	<i>Campanulotes bidentatus</i> (Scopoli).	27
<i>biseriatis</i> Denny.	<i>Cummingsiella ovalis</i> (Scopoli).	23
<i>buteonis</i> Fabricius.	<i>Laemobothrion maximum</i> (Scopoli).	5
<i>coarctatus</i> Scopoli.	<i>Philopterus coarctatus</i> (Scopoli).	6
<i>collurionis</i> Schrank.	<i>Philopterus coarctatus</i> (Scopoli).	6
<i>colymbinus</i> Scopoli.	<i>Aquanirmus colymbinus</i> (Scopoli).	20
<i>constrictiventris</i> Pessôa & Guimarães.	<i>Halipeurus procellariae</i> (Fabricius).	34
<i>cornicis</i> Fabricius.	<i>Philopterus ocellatus</i> (Scopoli).	10
<i>crassicornis</i> Scopoli.	<i>Anaticola crassicornis</i> (Scopoli).	17
<i>cuculi</i> Fabricius.	<i>Cuculiphilus fasciatus</i> (Scopoli).	13
<i>cuspidatus</i> Scopoli.	<i>Rallicola cuspidatus</i> (Scopoli).	25
<i>dentatus</i> Scopoli.	<i>Anatoecus dentatus</i> (Scopoli).	15
<i>diomedaeae</i> Fabricius.	<i>Perineus diomedaeae</i> (Fabricius).	34
<i>dolichocephalus</i> Scopoli.	<i>Ricinus dolichocephalus</i> (Scopoli).	10
<i>fasciatus</i> Scopoli.	<i>Cuculiphilus fasciatus</i> (Scopoli).	13
<i>fringillae</i> Scopoli.	<i>Philopterus fringillae</i> (Scopoli).	32
<i>fusco-marginatus</i> Denny.	<i>Aquanirmus colymbinus</i> (Scopoli).	21
<i>gigantum</i> Nitzsch.	<i>Laemobothrion maximum</i> (Scopoli).	5
<i>haematopus</i> Scopoli.	<i>Craspedorrhynchus haematopus</i> (Scopoli).	4
<i>junceus</i> Scopoli.	<i>Quadriceps junceus</i> (Scopoli).	24
<i>lanii</i> Fabricius.	<i>Philopterus coarctatus</i> (Scopoli).	6
<i>maximus</i> Scopoli.	<i>Laemobothrion maximum</i> (Scopoli).	5
<i>motacillae</i> Fabricius.	<i>Penenirmus albiventris</i> (Scopoli).	29
<i>ocellatus</i> Scopoli.	<i>Philopterus ocellatus</i> (Scopoli).	8
<i>orioli</i> Fabricius.	<i>Ricinus dolichocephalus</i> (Scopoli).	13
<i>ovalis</i> Scopoli.	<i>Cummingsiella ovalis</i> (Scopoli).	21
<i>passeris</i> Fourcroy.	<i>Philopterus fringillae</i> (Scopoli).	32
<i>passeris</i> Piaget.	<i>Philopterus fringillae</i> (Scopoli).	32
<i>phanerostigma</i> Giebel.	<i>Cuculiphilus fasciatus</i> (Scopoli).	13
<i>phanerostigmaton</i> Nitzsch.	<i>Cuculiphilus fasciatus</i> (Scopoli).	13
<i>pilosus</i> Scopoli.	<i>Pseudomenopon pilosum</i> (Scopoli).	19
<i>platyrrhynchus</i> Nitzsch.	<i>Craspedorrhynchus haematopus</i> (Scopoli).	5
<i>procellariae</i> Fabricius.	<i>Halipeurus procellariae</i> (Fabricius).	34
<i>pseudonirmus</i> Nitzsch.	<i>Cummingsiella ovalis</i> (Scopoli).	23
<i>ralli</i> Scopoli.	<i>Incidifrons ralli</i> (Scopoli).	32
<i>ralli</i> Denny.	<i>Incidifrons ralli</i> (Scopoli).	32
<i>squalidus</i> Nitzsch.	<i>Anaticola crassicornis</i> (Scopoli).	18
<i>strigis</i> Pontoppidan.	<i>Strigiphilus strigis</i> (Pontoppidan).	29
<i>strigis</i> Scopoli.	<i>Strigiphilus strigis</i> (Pontoppidan).	31
<i>strigis</i> Fabricius.	<i>Craspedorrhynchus haematopus</i> (Scopoli).	5
<i>subflavescens</i> auctorum.	<i>Philopterus fringillae</i> (Scopoli).	32
<i>sulphureum</i> Nitzsch.	<i>Ricinus dolichocephalus</i> (Scopoli).	13
<i>superciliosus</i> Burmeister.	<i>Penenirmus auritus</i> (Scopoli).	15
<i>testudinarius</i> Denny.	<i>Cummingsiella ovalis</i> (Scopoli).	24
<i>thompsoni</i> Eichler.	<i>Pseudomenopon pilosum</i> (Scopoli).	19
<i>tinnunculi</i> Latreille.	<i>Craspedorrhynchus haematopus</i> (Scopoli).	4
<i>tridens</i> Burmeister.	<i>Pseudomenopon pilosum</i> (Scopoli).	19
<i>tridens</i> var. <i>major</i> Piaget.	<i>Pseudomenopon pilosum</i> (Scopoli).	19
<i>troglydytis</i> Waterston.	<i>Penenirmus albiventris</i> (Scopoli).	29
<i>vanelli</i> Schrank.	<i>Quadriceps junceus</i> (Scopoli).	24
<i>vulturis</i> Fabricius.	<i>Laemobothrion vulturis</i> (Fabricius).	34

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